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10/632,051	07/30/2003	Steve Gronemeyer	SIRF-104US (245-US-CIP1)	9974

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EXAMINER	
NGUYEN, DUC M	
ART UNIT	**PAPER NUMBER**
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/632,051	GRONEMEYER ET AL.	
	Examiner	Art Unit	
	DUC M. NGUYEN	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 May 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6/8/10*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This action is in response to applicant's response filed on 5/20/10. Claims 1-33 are now pending in the present application. **This action is made final**.

Claim Rejections - 35 USC ∋ 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims **1-13** are rejected under 35 U.S.C. 103(a) as being unpatentable by **Molnar et al** (US 2002/0142741) in view of **Kaewell** et al (US 6,775,531) and **Lindlar** (US 7,149, 473).

Regarding claim **1**, **Molnar** discloses a radio frequency (RF) to baseband interface providing power control over an R.F section that processes RF signals and that is coupled to a baseband section that processes baseband signals, the interface comprising:

- a serial message interface (see Fig. 3 and [0047]) for communicating a power control message from the baseband section to the RF section that is associated with power consumption of the RF section as claimed (see [0058, 0064, 0072]), where data bits transfer to register of serial interface 332 and stored in data

latches to program (control) RF integrated circuit 338 component would power up or power down components according to the component control voltage V_{CO} that is shifted by the local level shifter 336 (see [0066, 0069-0071]) in the similar way as disclosed by **Kaewell** (see col. 12, lines 17-21 regarding "shifts the levels of the four signals from CMOS levels to RF power control levels to produce actual signals that power up or power down the circuit components of RF section"). Therefore, it is clear that the data bits transfer to register of serial interface 332 would obviously comprise ON/OFF (or 1/0) bits control signal for each component associated with data latches 334 (up to 24 bits as disclosed in [0065]), and the data latches would then provide control signals at V_{BO} to the local level shifter 336 to act in accordance with ON/OFF control signal. Therefore, "the data 326" (Fig. 3, [0072]) comprising data bits for transferring to register of serial interface 332 would cause different control voltage V_{CO} for each component in the RF section via latches and level shifters, and would read on the claimed "power control message",

- wherein the RF section includes a register for receiving the power control message from the baseband section and wherein devices to be controlled by the power control message are coupled to the register to receive respective power control data from the received power control message (see Fig. 3, and [0064, 0072] regarding registers of SI 332 for receiving baseband digital control signal via data connection 326); and

- a data interface for communicating data from the RF section to the baseband section (see Fig. 3 regarding ADC 320);

Therefore, the claimed limitations are made obvious by **Molnar** in view of **Kaewell** regarding the operation of level shifters 336 for shifting baseband digital control signal at V_{BO} to produce the component control signal at V_{CO} that would power up or power down the corresponding component.

Therefore, **Molnar** in view of **Kaewell** would teach all the claimed limitations except for a bi-directional message for the serial interface 332. However, in an analogous art, **Lindlar** teaches a bi-directional message interface for communicating data and control signals (i.e, data, status, an operation mode such as transmit mode, receive mode, or sleep mode) between the baseband section and the RF section (see Table 1 and col. 2, lines 18-58). Since one skilled in the art would recognize the benefit of the bi-directional message interface in **Lindlar**, it would have been obvious to one skilled in the art at the time the invention was made to modify **Molnar** for providing a bi-directional message to the serial interface in **Molnar** as well, for utilizing advantages of two way communication such as communicating digital control signals between the baseband section and the RF section, for exchanging data, status, information according to the current operation mode of the transceiver.

Regarding claims **2, 4, 8, 11, 13**, the claims are rejected for the same reason as set forth in claim 1 above. In addition, it is clear that **Molnar** would teach a plurality of power control bits (see [0072] regarding each data latch receives **one bit** of data from serial interface) individually specifying power states (ON or OFF bit) for a plurality of

pre-selected circuitry in the RF section (see [0070-0072] regarding modulator, converter and synthesizer), in order to control an operating voltage for each component individually.

Regarding claim **3, 12**, the claims are rejected for the same reason as set forth in claim 1 above. In addition, **Molnar** in view of **Kaewell** would teach the power state is one of a power-up state and a power-down state as claimed (see Kaewell, col. 12, lines 17-21 and Molnar [0071]), in order to intermittently shut down RF components.

Regarding claim **5**, the claim is rejected for the same reason as set forth in claim 1 above. In addition, **Molnar** would teach the pre-selected circuitry is at least one of a frequency divider, oscillator, and amplifier (see Molnar, [0072] which would include at least one oscillator as claimed).

Regarding claims **6, 9**, the claims are rejected for the same reason as set forth in claim 1 above. In addition, **Molnar** would teach the message interface is a serial message interface (see Molnar [0047]).

Regarding claim **7, 10**, the claims are rejected for the same reason as set forth in claim 1 above. In addition, **Molnar** as modified would teach the message interface comprises a message-in signal line, a message-out signal line and a message clock signal line (see **Lindlar**, Table 1 and col. 2, lines 18-58, where a bidirectional signal line would read on message-in and message-out signal line).

3. Claims **14-20, 22-33** are rejected under 35 U.S.C. 103(a) as being unpatentable by **Molnar** in view of **Kaewell** and **Lindlar**, and further in view of **Syrjarinne et al** (US 2003/0107514).

Regarding claim **14**, the claim is rejected for the same reason as set forth in claim 1 above. However, **Molnar** as modified fails to teach a GPS receiver. However, **Syrjarinne** discloses a GPS receiver (see Abstract). Since incorporating a GPS receiver in a mobile phone is well known in the art, it would have been obvious to one skilled in the art at the time the invention was made to further modify **Molnar** for incorporating a GPS receiver to the Molnar's transceiver as suggested by Syrjarine (see [0013]), for utilizing advantages of the GPS receiver such as providing navigation capability. Note that **Syrjarinne** also suggests a low power standby mode for the GPS receiver for power saving (see [0029-0030]).

Regarding claim **15**, the claim is rejected for the same reason as set forth in claim 14 above. In addition, **Molnar** as modified would teach the message interface comprises a message-in signal line, a message-out signal line and a message clock signal line (see **Lindlar**, Table 1 and col. 2, lines 18-58, where a bidirectional signal line would read on message-in and message-out signal line).

Regarding claim **16**, the claim is rejected for the same reason as set forth in claim 14 above. In addition, **Molnar** would teach a plurality of power control bits (see [0072] regarding each data latch receives one bit of data from serial interface) individually specifying power states for a plurality of pre-selected circuitry in the RF

section (see [0070-0072] regarding modulator, converter and synthesizer), in order to control an operating voltage for each component individually.

Regarding claim **17**, the claim is rejected for the same reason as set forth in claim 14 above. In addition, **Molnar** in view of Kaewell would teach the power state is one of a power-up state and a power-down state as claimed (see Kaewell, col. 12, lines 17-21 and Molnar [0071]), in order to intermittently shut down RF components.

Regarding claims **18, 26, 32**, the claims are rejected for the same reason as set forth in claim 14 above. In addition, **Molnar** would teach the power control message comprises a plurality of power control bits individually specifying power states for a plurality of pre-selected circuitry in the RF section as claimed (see **Molnar** [0072] regarding each data latch receives one bit of data from serial interface. See also **Syrjarinne** [0014], [0037], [0039] through [0042]).

Regarding claim **19**, the claim is rejected for the same reason as set forth in claim 14 above. In addition, **Molnar** would teach the pre-selected circuitry is at least one of a frequency divider, oscillator, and amplifier (see Molnar, [0072] which would include at least one oscillator as claimed).

Regarding claim **20**, the claim is rejected for the same reason as set forth in claim 14 above. In addition, **Molnar** would teach the message interface is a serial message interface which includes a data clock signal line and data bit signal line (see Molnar, Fig. 3, ref. 326 and [0047]. See also **Lindlar**, Table 1 and col. 2, lines 18-58).

Regarding claims **22-33**, the claims are interpreted and rejected for the same reason as set forth in claims 14-20 above, wherein it is clear that the baseband

processing section in **Molnar** would obviously comprise at least one address, data, and control line for communicating with a digital device (DSP) as claimed (see Molnar, Fig. 3 and [0046-0047).

Allowable Subject Matter

4. Claim 21 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Double Patenting

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claim **21** is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3 of U.S. Patent No. **7,634,025** in view of **Molnar** et al (US 2002/0142741).

Regarding claim **21**, **US 7,634,025** teaches a GPS receiver with a baseband serial interface for providing a bidirectional message serial interface between the RF section and the baseband section (see claims 1-3, 13), which would include all the claimed limitations except for a register to receive power control message from a baseband. However, in an analog art, **Molnar** teaches a serial interface having a register for receiving a baseband power control signal, wherein during the stand-by mode, RF components are placed into a low power consumption standby state (see [0059, 0064, 0072]). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify **10/369853** for power down the RF circuit during stand-by mode as suggested by Molnar (see [0072]), thereby providing a power control message as claimed, for prolonging battery time of the wireless device.

Response to Arguments

7. Applicant's arguments with respect to claims 1-33 have been considered but are moot in view of the new ground(s) of rejection.

Here are some responses regarding the Power Management Integrated Circuit (PMIC) in Molnar's reference. In the Remark, Applicant contends that

Molnar does not disclose or suggest sending any power control messages via the serial interface. In support of this assertion, the Examiner points to paragraph [0047] of Molnar. While this paragraph does describe a serial interface 332 via which control signals may be conveyed from the baseband module to the RF module, it does not disclose or suggest that any of these control signals may be a power control signal.
Indeed, Molnar teaches that power control of the RF module and the other modules in the system is accomplished by the power module 206. For example, paragraph [0040] states:
The module 206 is coupled to a power supply 210. The power supply 210
may be a battery or other power source and may be implemented as a power management integrated circuit (PMIC) on a single die. The power module 206 controls the power supply for all of the other components of the mobile communications device 22.
Contrary to the assertion by the Examiner, this passage indicates that power control in the mobile

communications device is accomplished using a power management integrated circuit. From this passage, the skilled person would understand that the power control module 206 autonomously controls power to the RF module. Thus, the skilled person would not understand Molnar as sending power control messages from the baseband module to the power control module. In the Office Action, the Examiner asserts that the control messages include power control bits. To support this assertion, the Examiner points to the Abstract and paragraphs [0010], [0047] and [0057] to [0060] of Molnar. None of these paragraphs, however, indicates that the messages include power control bits.

In response, the examiner asserts that Molnar only describes the power module 206 controls the power supply for all of the other components of the mobile communications device 22. This is true for all devices in order for components to receive a power supply for operating purpose. However, for intermittently shut down components of the RF section, the whole document points to a digital baseband control signal for intermittently controlling power up or shut down of selective RF components such as modulators, converters or synthesizers. Specifically, in paragraph [0072], Molnar teaches

[0072] In operation, connections 326 pass baseband digital control signals from the baseband module 202 via the serial interface 332 and a data latch 334. The clock line, one of connections 326, has a clock signal from the baseband module 202. At every positive edge of the clock signal a new data bit is clocked into the serial interface 332. The latch enable line of connections 326 triggers the transfer of the data in the serial interface 332 to the data latches 334, each data latch receiving one bit of data from the serial interface 332. The data input stored in each of the data latches 334 is then sent to a local level shifter 336 associated with radio frequency integrated circuit 338 components such as the demodulator 384, the synthesizer 354, the modulator/upconverter 346, and the downconverter 370. The data input **programs** the radio frequency integrated circuit 338 component associated with the data latch 334.

Therefore, it is clear that baseband digital control signals are stored in data latches 334 for inputting to the level shifters 336 control signals at V_{BO} and then, the level shifters 336 would subsequently converting to the control signal (in ON or OFF state) to a different control voltage V_{CO} for each component (see Molnar, [0066, 0070-0071]). Here, in view of **Kaewell's** reference regarding the operation of level shifter,

one skilled in the art would recognize that the control voltage V_{CO} provided by the level shifter 336 in **Molnar** would obviously correspond to the operating voltage when power up and would obviously correspond to a small voltage (i.e, near zero) when power down in the similar way as described by **Kaewell** (see col. 12, lines 17-21). As an example, the control signals from data latches 334 to level shifters 336 in Molnar would correspond to the four control signals in Kaewell, the "V_{BO} level" in Molnar would correspond to the "CMOS level" in Kaewell, the "level shifter 336" in Molnar would correspond to the "power interface circuit 151" in Kaewell, the control signal at the control voltage V_{CO} in Molnar would correspond to the actual signal that power up or power down associated component in Kaewell. Therefore, since the baseband digital control signal in Molnar would control different control voltage V_{CO} for each component in the RF section via latches and level shifters, this baseband digital control signal would clearly read on the claimed "power control message".

Applicant further contends that

Although Molnar does not explicitly describe the control messages that are sent, at paragraphs [0023] through [0025], Molnar describes several different GSM systems and describes how a particular receiver is assigned a frequency to be used in the GSM standard. From this description, the skilled person would understand that the control signals provided via the serial interface are to configure the RF module to a particular GSM standard and/or to configure the RF module to use a particular frequency band once that band has been assigned.

In response, the examiner asserts that nothing in [0023-0025] would suggest control signals provided via the serial interface 332 are to configure the RF module to a particular GSM standard and/or to configure the RF module to use a particular frequency band once that band has been assigned. In fact, paragraphs [0071-0072]

clearly suggest that the control signals provided via the serial interface 332 are to configure demodulator, synthesizer, upconverter, downconverter to operate at different voltage levels.

Applicant further contends that

As set forth above, nothing in Molnar indicates that any of the control messages sent by the serial interface is a power control message. While Molnar describes providing a "standby voltage" from the baseband module to the RF module, this is not a message but an operational power supply line. This voltage is provided for the sole purpose of retaining control signals that are stored by the RF module in the data latches 334, when the RF module is powered down. (See paragraph [0059] of Molnar, "[t]he one supply voltage maintained during shutdown, the baseband standby voltage at voltage level VBO, maintains a voltage only for memory retention purposes").
In paragraphs [0057] - [0060], Molnar describes a low-Voltage Digital Interface in which the RF integrated circuit 338 operates in a different voltage range than the Baseband circuitry 202. This passage describes level shifting circuitry which translates the control signals provided by the Baseband circuitry 202 into voltage levels that are compatible with the RF circuitry 338. This passage does not disclose that any of these signals is used for power control. Instead, it discloses that, during shutdown, the only voltage that is applied to the RF circuitry is the baseband standby voltage, and that voltage is applied only to retain the data stored in the latches 334. (See paragraph [0059]). This passage is consistent with the PMIC controlling power to the RFIC 338.

In response, the examiner agrees that Molnar describes providing a "standby voltage" from the baseband module to the RF module via connection 324, this is used for memory retention purpose. However, **connection 326** clearly provide control signals that would control operating voltage V_{CO} of RF components such as demodulator, synthesizer, upconverter, downconverter. And in view of Kaewell's reference (col. 12, lines 17-21), the control operating voltage V_{CO} provided by the level shifter 336 would obviously power up or power down a particular component according to the status of the control signal (i.e, ON or OFF). Therefore, although the PMIC provide power supply to all components of a communication device, the PMIC **does not** control voltage V_{CO} of components as described in [0066-0071]).

Applicant further contends that

The examiner also notes that "any control signal relating to 'power usage' of RF section would read on 'power control message' as claimed." Applicant notes that pursuant to MPEP section 2181, "claim language must be analyzed not in a vacuum but in light of: (A) the content of the particular application disclosure; (B) the teachings of the prior art; and (C) the claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time the invention was made." As set forth above, the claims explicitly recite "a power control message," also as set forth above, there are significant differences between messages and signals. In view of the teachings of the specification and the words used in the claim, the Examiner is not entitled to ignore the word "message" when interpreting the claim. Thus, as described above, a message is not equivalent to a signal

In response, the examiner asserts that although “message” and “signal” are two different terminologies, they are both meaning the same for Molnar and the claimed invention because they both provide **control bits** in a message/signal to a serial interface for controlling power of RF components (see Molnar, [0072] regarding “…each data latch receiving one bit of data from the serial interface 332……”. Since there are up to 24 latches (see [0065]), the baseband digital control signal would comprise at least 24 control bits).

For foregoing reasons, the examiner believes that the pending claims are not allowable over the cited prior art.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. **Any response to this final action should be mailed to:**

Box A.F.

Commissioner of Patents

P.O. Box 1450

Alexandria, VA 22313-1450

or faxed to:

(571) 273-8300 (for **formal** communications intended for entry)

(571)-273-7893 (for informal or **draft** communications).

Hand-delivered responses should be brought to Customer Service Window, Randolph Building, 401 Dulany Street, Alexandria, VA 22314.

Any inquiry concerning this communication or communications from the examiner should be directed to Duc M. Nguyen whose telephone number is (571) 272-7893, Monday-Thursday (9:00 AM - 5:00 PM).

Or to Nay Maung (Supervisor) whose telephone number is (571) 272-7882.

/Duc M. Nguyen/

Primary Examiner, Art Unit 2618

July 1, 2010